US007782191B2

(12) **United States Patent**
Flores

(10) **Patent No.: US 7,782,191 B2**
(45) **Date of Patent: Aug. 24, 2010**

(54) **PORTABLE ALARM APPARATUS FOR WARNING PERSONS**

(76) Inventor: **Tomas Flores**, 8765 Tomnitz, #101, Las Vegas, NV (US) 89178

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 270 days.

(21) Appl. No.: **11/828,209**

(22) Filed: **Jul. 25, 2007**

(65) **Prior Publication Data**

US 2009/0027192 A1 Jan. 29, 2009

(51) **Int. Cl.**
G08B 1/08 (2006.01)

(52) **U.S. Cl.** **340/539.12**; 340/321; 340/573.1; 340/286.07; 128/903; 600/300

(58) **Field of Classification Search** . 340/539.1–539.32, 340/693.1, 628, 632, 573.1, 286.07, 321; 128/903; 600/300
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,352,961	A		10/1982	Kumada et al.
5,231,047	A		7/1993	Ovshinsky et al.
5,417,222	A	*	5/1995	Dempsey et al. 600/509
5,436,622	A		7/1995	Gutman et al.
5,552,772	A		9/1996	Janky et al.
5,573,012	A		11/1996	McEwan
5,580,251	A		12/1996	Gilkes et al.
5,589,824	A		12/1996	Lynch
5,707,745	A		1/1998	Forrest et al.
5,711,302	A	*	1/1998	Lampropoulos et al. 600/485
5,724,045	A		3/1998	Kawakami
5,766,013	A		6/1998	Vuyk
5,867,105	A		2/1999	Hajel
5,986,206	A		11/1999	Kambe et al.
5,990,995	A		11/1999	Ebihara et al.
6,121,885	A		9/2000	Masone et al.
6,160,478	A		12/2000	Jacobsen et al.
6,162,985	A		12/2000	Parise
6,165,641	A		12/2000	Striebel et al.
6,165,646	A		12/2000	Takada et al.
6,200,264	B1		3/2001	Satherley et al.
6,218,958	B1		4/2001	Eichstaedt et al.
6,221,531	B1		4/2001	Vaughey et al.
6,278,944	B1		8/2001	Lui et al.
6,317,611	B1		11/2001	Kobayakawa et al.
6,319,200	B1	*	11/2001	Lai et al. 600/300
6,323,989	B1		11/2001	Jacobson et al.
6,326,901	B1		12/2001	Gonzales
6,356,841	B1		3/2002	Hamrick et al.

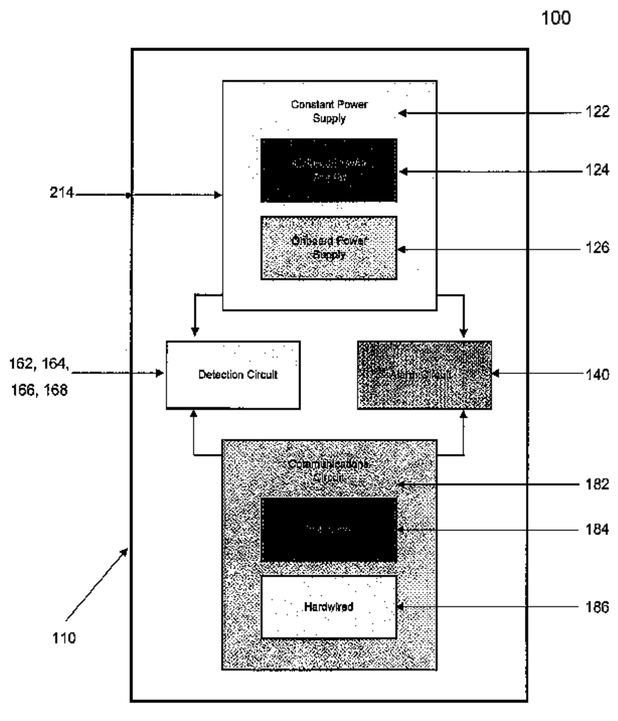
(Continued)

Primary Examiner—Brent Swarthout
(74) *Attorney, Agent, or Firm*—Fernandez & Associates, LLP

(57) **ABSTRACT**

Portable alarm apparatus for warning a person is provided which includes a manually portable housing or base unit; a constant power supply supported by the base unit, the constant power supply including an external power supply having an interface connectible to a power source external of the base unit, the constant power supply including an onboard power supply independent of the external power supply whose makeup includes at least one of: photovoltaic, piezoelectric and thermoelectric; a detection circuit supported by the base unit, the detection circuit being connected to the constant power supply, the detection circuit being operable to detect a monitored condition, the detection circuit including at least one of: a smoke detector, a carbon monoxide detector and a fire detector; and an alarm circuit supported by the base unit, the alarm circuit being connected to the constant power supply, the alarm circuit being operable in response to detection of the monitored condition by the detection circuit to produce an alarm signal for warning a person.

1 Claim, 5 Drawing Sheets



U.S. PATENT DOCUMENTS

6,362,743	B1 *	3/2002	Tanguay et al.	340/630
6,366,871	B1	4/2002	Geva	
6,376,922	B1	4/2002	Lake	
6,377,843	B1	4/2002	Naydenov et al.	
6,384,743	B1	5/2002	Vanderheiden	
6,389,291	B1	5/2002	Pande et al.	
6,461,762	B1	10/2002	Yang et al.	
6,466,125	B1	10/2002	Richards et al.	
6,528,204	B1	3/2003	Hikmet et al.	
6,548,107	B2	4/2003	Forbes et al.	
6,590,150	B1	7/2003	Kiefer	
6,648,820	B1	11/2003	Sarel	
6,665,385	B2	12/2003	Rogers et al.	
6,685,334	B2	2/2004	Kenny et al.	
6,723,378	B2	4/2004	Hrubesh et al.	
6,731,207	B1	5/2004	Swieboda et al.	
6,743,021	B2	6/2004	Prince et al.	
6,748,250	B1	6/2004	Berman et al.	
6,756,896	B2	6/2004	Ford	
6,762,686	B1	7/2004	Tabe	
6,788,452	B2	9/2004	Liang et al.	
6,870,088	B2	3/2005	Tachibana et al.	
6,881,063	B2	4/2005	Yang	
6,909,486	B2	6/2005	Wang et al.	
6,911,764	B2	6/2005	Pelrine et al.	
6,913,713	B2	7/2005	Chittibabu et al.	
6,927,475	B2	8/2005	Lu	
6,936,761	B2	8/2005	Pichler	
6,937,191	B2	8/2005	Puente Baliarda	
6,970,731	B1	11/2005	Jayaraman et al.	
6,982,178	B2	1/2006	LeCain, et al.	
6,988,989	B2	1/2006	Weiner et al.	
7,002,555	B1	2/2006	Jacobsen et al.	
7,006,002	B2	2/2006	Shornali	
7,030,413	B2	4/2006	Nakamura et al.	
7,038,655	B2	5/2006	Herb et al.	
7,045,205	B1	5/2006	Sager	
7,046,153	B2	5/2006	Oja et al.	
7,064,751	B1	6/2006	Triepels et al.	
7,071,827	B2	7/2006	Carroll	
7,075,476	B2	7/2006	Kim	
7,079,020	B2	7/2006	Stilp	
7,084,771	B2	8/2006	Gonzalez	
7,087,025	B2	8/2006	Baruch	
7,110,163	B2	9/2006	Webber et al.	
7,113,177	B2	9/2006	Franzen	
7,142,351	B2	11/2006	Chung et al.	
7,242,514	B2	7/2007	Chung et al.	
7,299,079	B2	11/2007	Rebec et al.	
2002/0188181	A1 *	12/2002	Boit et al.	600/300
2004/0236174	A1 *	11/2004	Boone et al.	600/21
2005/0033124	A1 *	2/2005	Kelly et al.	600/300
2006/0060512	A1 *	3/2006	Astle et al.	210/85
2007/0082652	A1 *	4/2007	Hartigan et al.	455/404.2
2007/0130657	A1 *	6/2007	Rogers et al.	D24/107

* cited by examiner

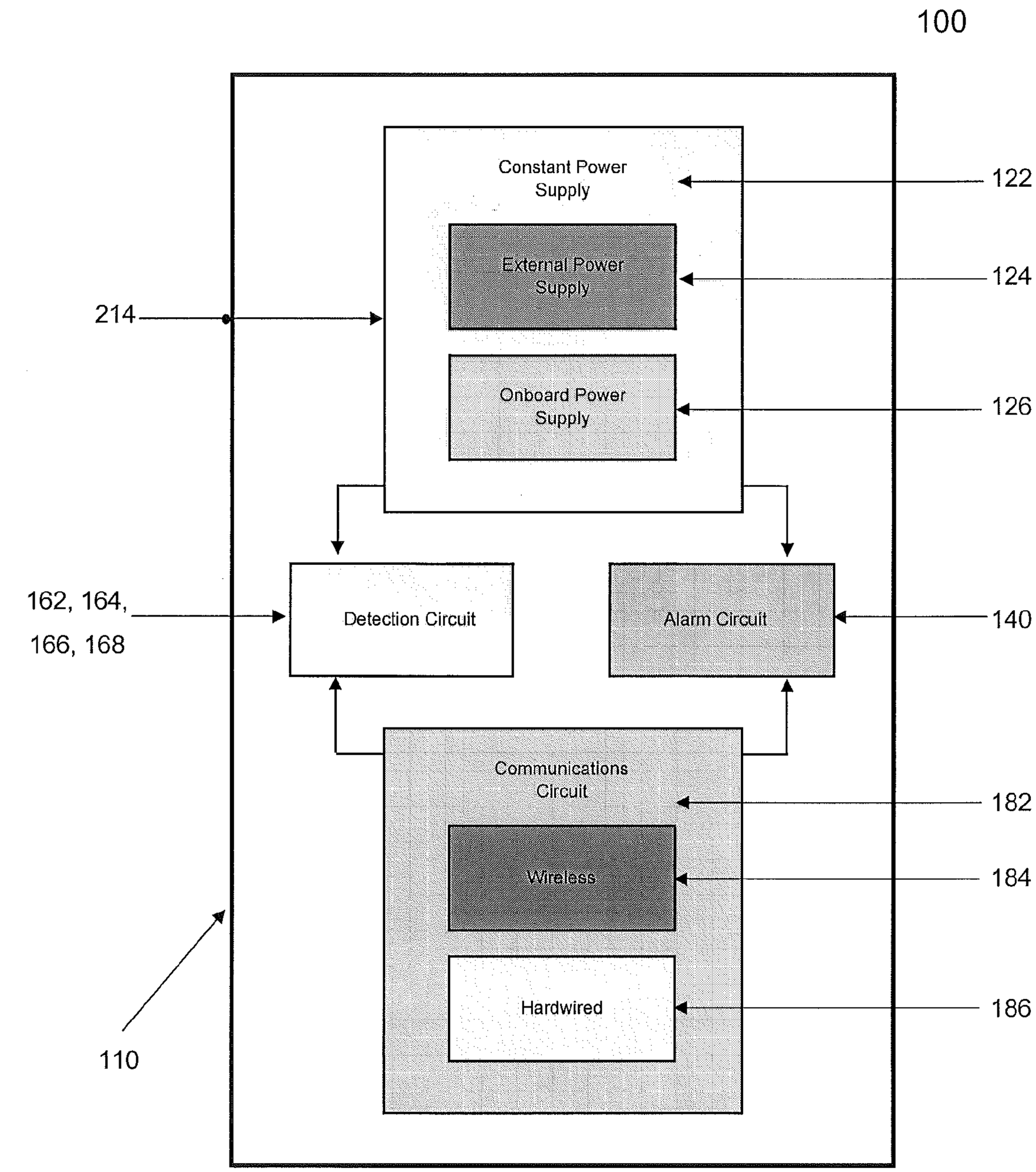

100
Constant Power Supply
122
External Power Supply
124
214
Onboard Power Supply
126
162, 164, 166, 168
Detection Circuit
Alarm Circuit
140
Communications Circuit
182
Wireless
184
Hardwired
186
110

FIG. 1

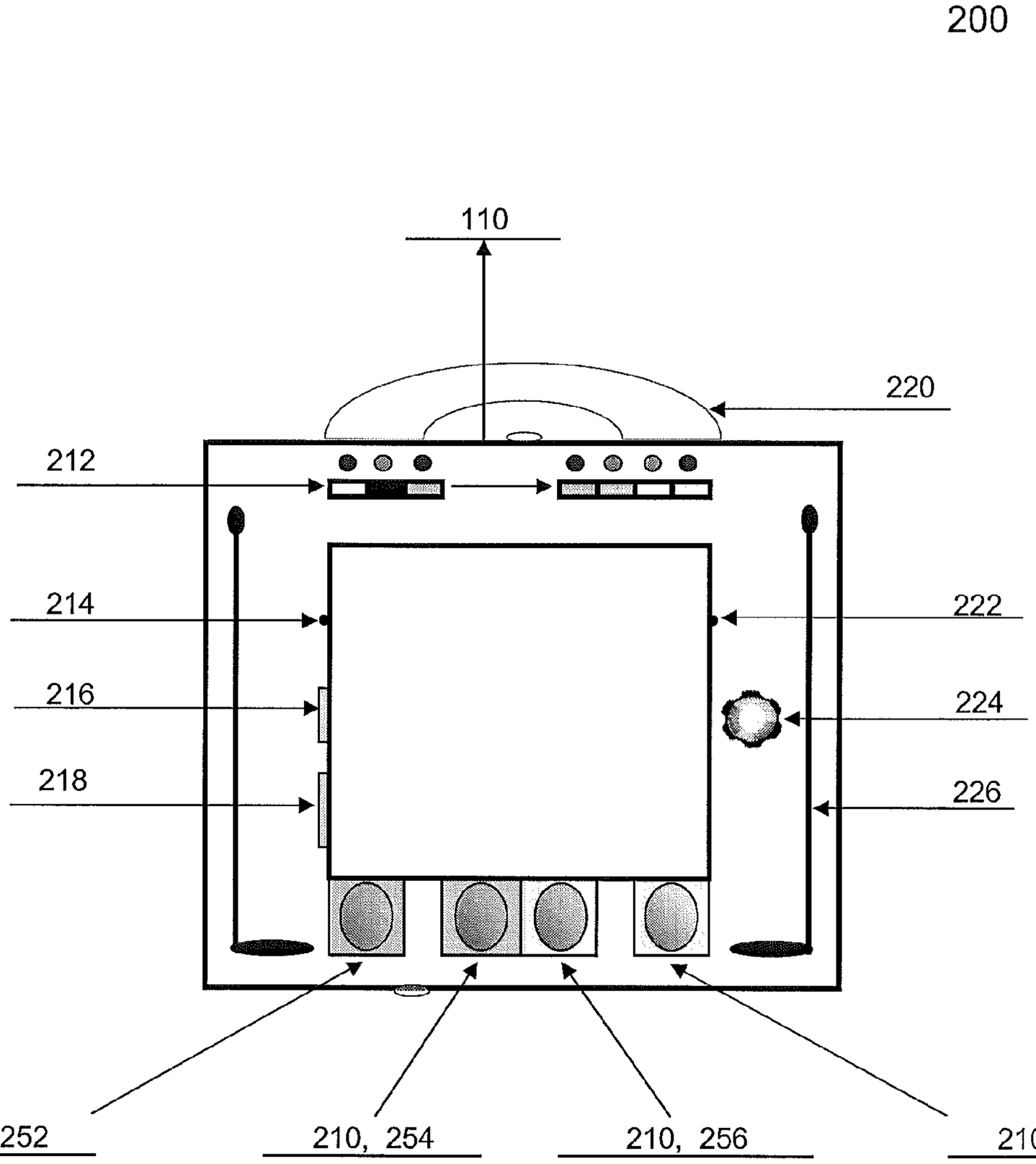

200
110
220
212
214
216
218
222
224
226
210, 252
210, 254
210, 256
210, 258

FIG. 2

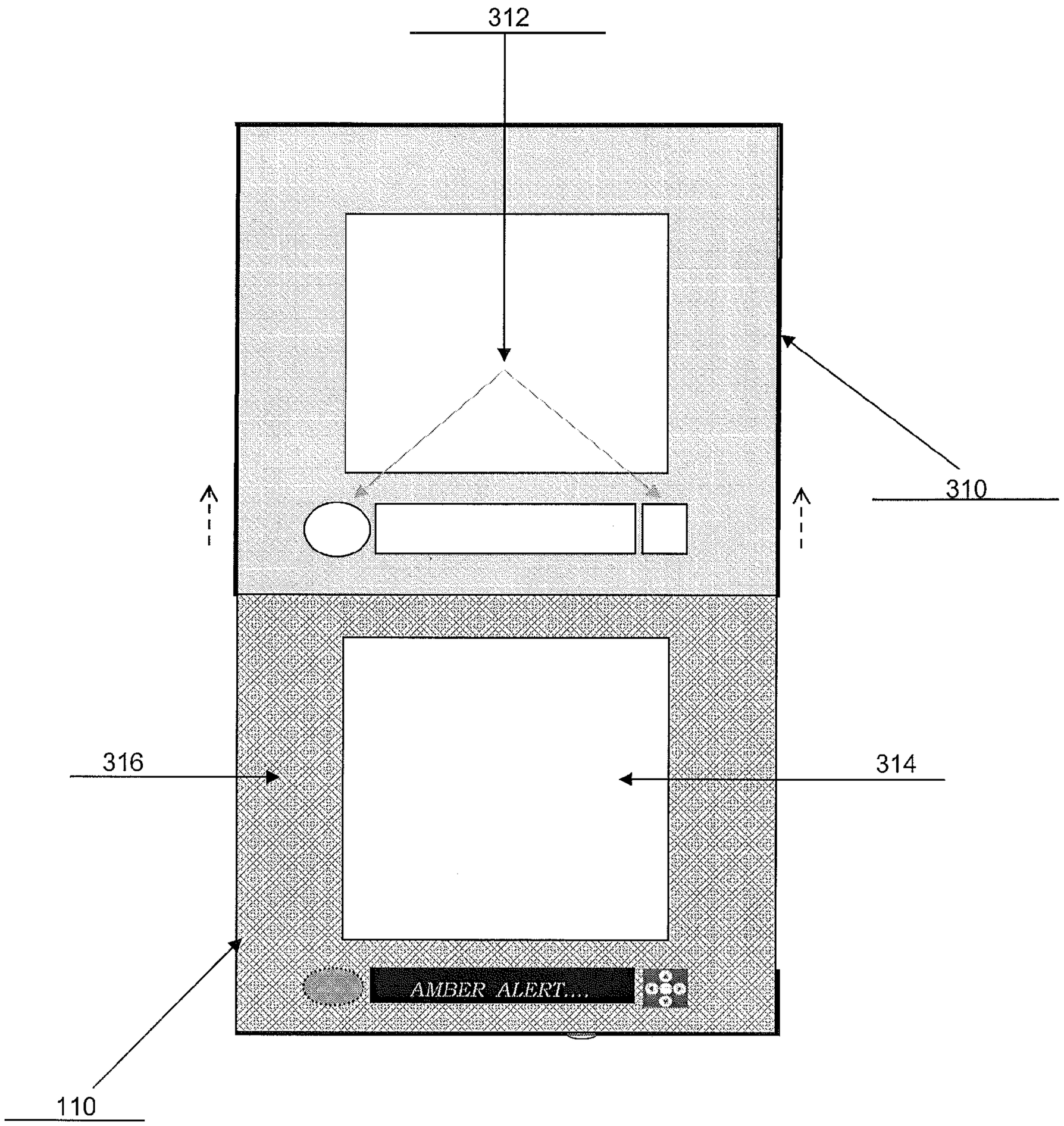


FIG. 3

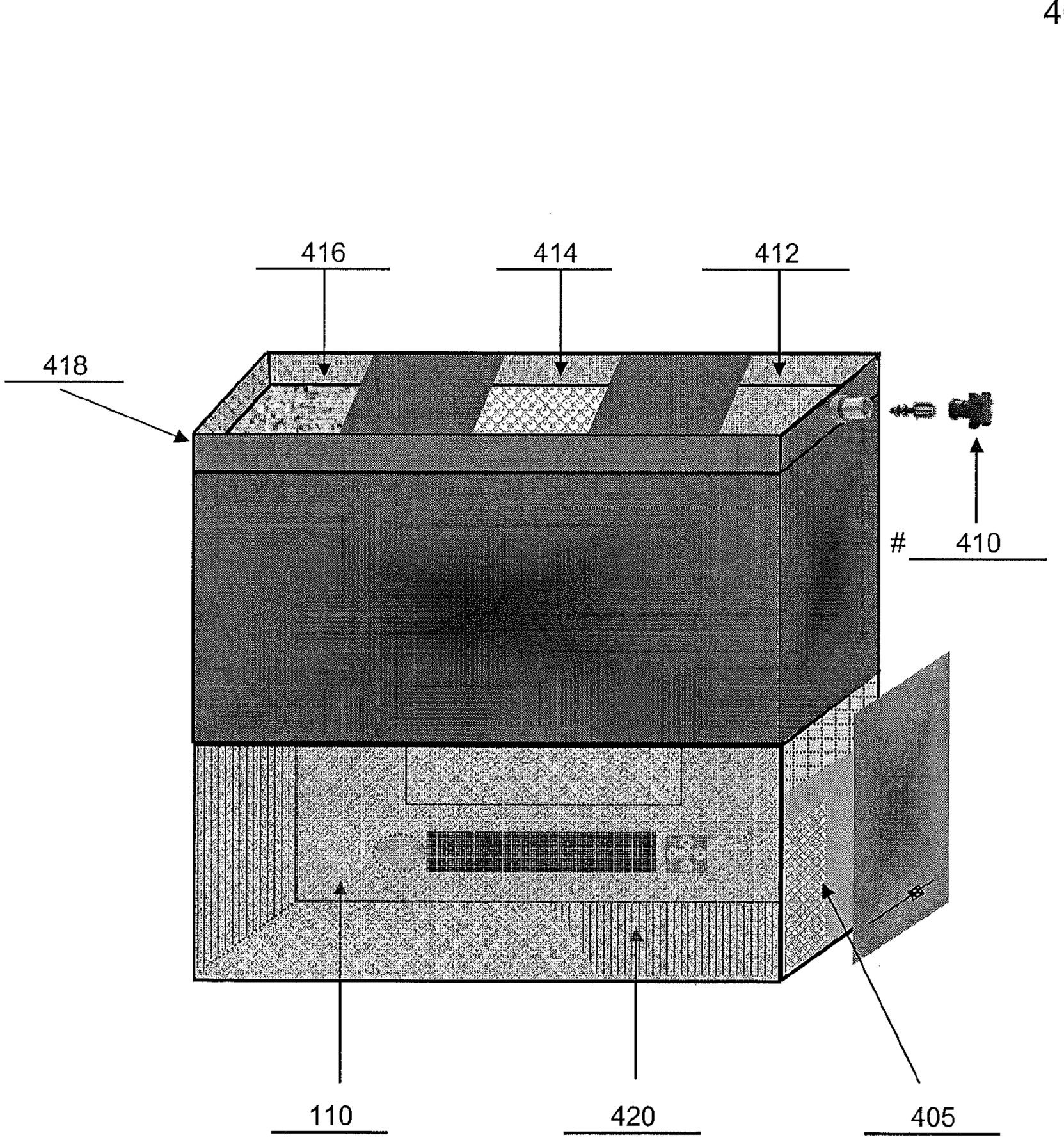


FIG. 4

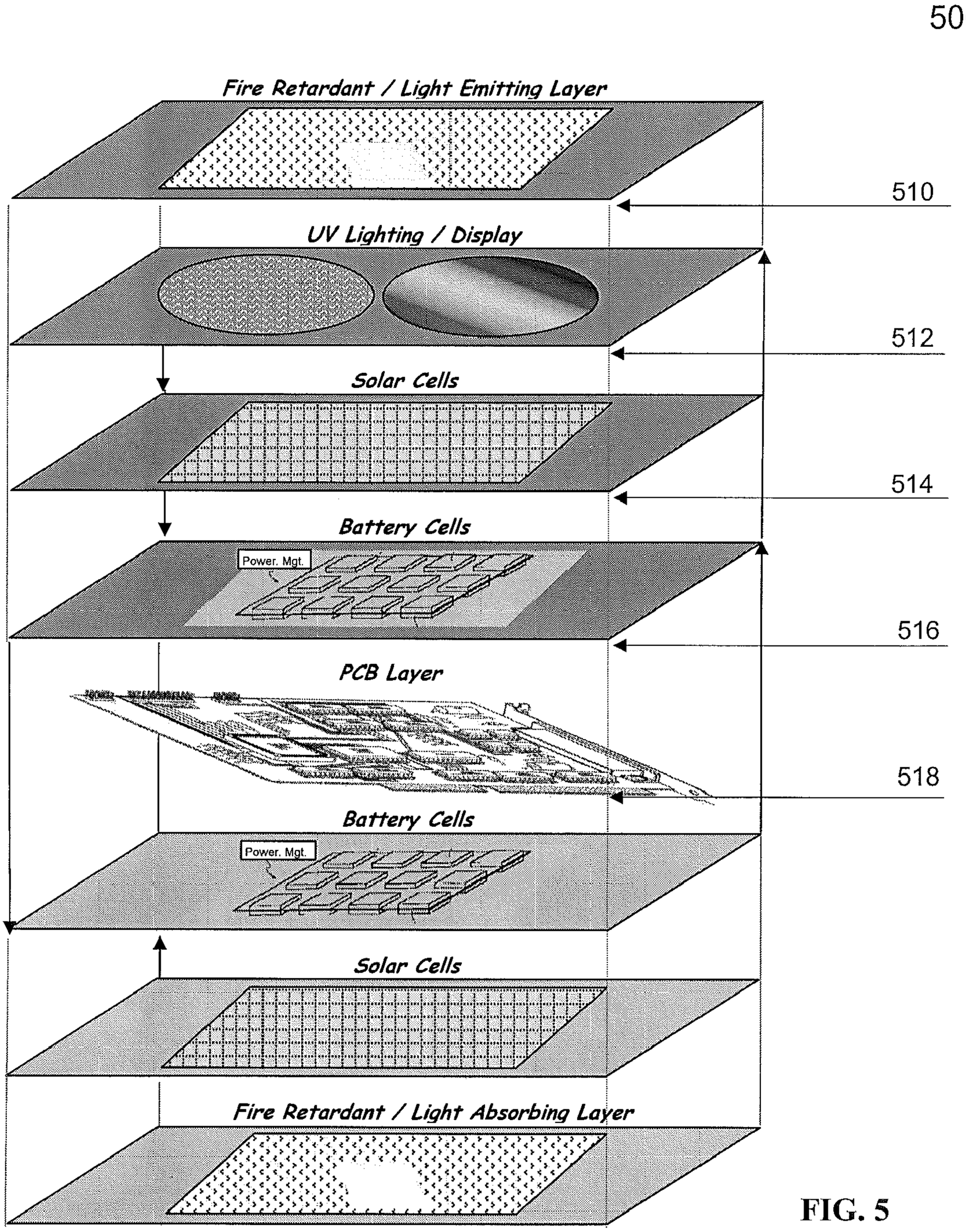

500
Fire Retardant / Light Emitting Layer
510
UV Lighting / Display
512
Solar Cells
514
Battery Cells
Power. Mgt.
516
PCB Layer
518
Battery Cells
Power. Mgt.
Solar Cells
Fire Retardant / Light Absorbing Layer

FIG. 5

PORTABLE ALARM APPARATUS FOR WARNING PERSONS

FIELD OF THE INVENTION

The present disclosure relates generally to an alarm apparatus for warning persons of dangerous conditions.

BACKGROUND OF THE INVENTION

An improved alarm apparatus for warning persons about potentially dangerous conditions can provide numerous benefits. These benefits, among many, include the potential of: Saving lives, reducing the occurrence of personal injuries, reductions in medical care necessary to care for personal injuries, reduced demand for emergency medical and rescue services, improved personal safety, and the reduction in worry about dangerous conditions. Benefits of an improved alarm apparatus for warning persons about dangerous conditions can be greater than ordinary for segments of the population who are frequently recognized as being at greater risk of injury or susceptible to dangerous conditions such as, for example: the physically or mentally challenged, medically ill or incapacitated, persons who suffer limited mobility, persons who are lost or unfamiliar with their surroundings, persons who do not speak or read the local language, persons who suffer from hearing or vision impairment, the elderly and children.

For the reasons stated above, and for other reasons stated below which will become apparent to those skilled in the art upon reading and understanding the present specifications, there is a need in the art for an improved alarm apparatus for warning persons of potentially dangerous conditions. The above-mentioned shortcomings, disadvantages and problems are addressed herein, which will be understood by reading and studying the following specifications, including the drawings and claims set forth therein.

BRIEF DESCRIPTION OF THE INVENTION

In one aspect, the present disclosure provides an improved portable alarm apparatus for warning persons of potentially dangerous conditions. A portable alarm apparatus of varying scope is described herein. In addition to the aspects and advantages described in this summary, further aspects and advantages will become apparent by reference to the drawings and by reading the detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a simplified block diagram illustrating the base unit of a portable alarm apparatus according to an embodiment.

FIG. **2** is a simplified partial schematic illustration of the back view of the portable alarm apparatus' base unit according to an embodiment.

FIG. **3** is an illustration of a sliding decorative façade being removed from the front face of the portable alarm apparatus' base unit to expose a component of the water treatment system in an embodiment.

FIG. **4** is a simplified partial perspective front view of an attachable water treatment housing of an embodiment, with panels omitted and others exposed to show certain inner details.

FIG. **5** is a partial layer diagram of a portable alarm apparatus according to an embodiment, with power layers in the base unit similar to those in the water purification unit.

DETAILED DESCRIPTION OF THE INVENTION

In the following detailed description, reference is made to the accompanying drawings that form a part hereof, and in which is shown by way of illustration specific embodiments which may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the embodiments, and it is to be understood that other embodiments may be utilized and that logical, mechanical, electrical and other changes may be made without departing from the scope of the embodiments. The following detailed description is, therefore, not to be taken in a limiting sense.

FIG. **1** is a simplified block diagram illustrating an embodiment of a manually portable alarm apparatus **100** for warning persons of a condition. In the illustrated embodiment, portable alarm apparatus **100** is adapted to warn a person or persons of a dangerous condition. In the specific arrangement illustrated in FIG. **1**, portable alarm apparatus **100** is adapted to warn persons of a plurality of dangerous conditions.

Examples of dangerous conditions warned of by portable alarm apparatus **100** include, for example, smoke, fire and carbon monoxide gas. It is to be understood that portable alarm apparatus **100** can be adapted to warn persons of different specific conditions such as, for example: Security alarm conditions such as detected motion and detected intrusion and nuclear, biological and poisonous gas indicators.

A built in radio can warn of severe weather and local area emergency warnings as well as Amber and terrorist alerts. The radio can be of any type including: Digital, satellite, AM/FM or software-defined radio.

It is to be understood that, in various embodiments (not shown) portable alarm apparatus **100** can also be suitably adapted to warn persons of monitored biometric measurements or biometric conditions of a monitored person.

The monitored person can be the same person who is warned of the condition, or may be a different person such as a caregiver, nurse or physician, or, of course, both the monitored person and one or more caregivers may be warned of a monitored biometric condition.

Examples of persons whose biometric conditions can be monitored can include, for example, a person suffering from: A cardiac or circulatory condition such as an irregular heartbeat, weak pulse, low blood pressure, or high blood pressure and respiratory conditions such as low oxygen saturation and anaphylactic shock. Other conditions can include fever and hypothermia.

In various embodiments, measurements for various vitals can come via wireless communications, dry electrodes, smart textiles and medical equipment or apparatuses both invasive and non-invasive. Smart textiles can be used in the form of a baby blanket to monitor for conditions such as S.I.D.S. or in the form of a shirt or blouse for tracking or for monitoring conditions such as Alzheimer's. Smart textiles can be fire retardant as well.

It is to be understood that, in various embodiments (not shown) portable alarm apparatus **100** can also be suitably adapted to track individuals or assist in directional travel. Technologies can include: GPS, UWB, RF and Radar.

An individual would be warned of deviation from a coordinate or intended direction of travel along a compass heading, emission of a suitable radio frequency or other signal, or GPS vector and altitude. The apparatus can include a manual compass or programmed compass system readout.

In one embodiment, the portable alarm apparatus **100** can assist rescue operations locate the whereabouts of an individual or apparatus even through concrete.

In another embodiment, the portable alarm apparatus **100** can work in tandem with a main frame system capable of monitoring hundreds of individuals in hospitals, factories or numerous at home patients. Tracking is possible in the case of a missing child tagged with a discreet RF device whether missing or abducted from a hospital or daycare.

One of skill in the art will appreciate that a portable alarm apparatus according to embodiments (not shown) can be adapted to provide warnings for any suitable purpose or function.

It is to be understood that, in various embodiments (not shown), portable alarm apparatus **100** can also be suitably adapted to communicate using a myriad of input and output devices which can include: Associated plug-in modules, touch screen, haptic glove, microphone, watches, pagers, cell phones, wheelchair or necklace call button, wireless and hardwired computer devices and other portable alarm apparatus **100**'s.

The LED (light emitting diode) message display can be found on the base unit **110**. The color of the LED display can be changed from red, to green or blue to accommodate viewing by persons who are color-blind. This message display can be used for a number of purposes, including: A scrolling alert message, time of day, radio station indicator, directional indicator when the tracking module is operated, or biometric information such as blood pressure or pulse, for example, when the biometric module is operated.

Base Unit **110** includes a removable cover **310** (FIG. **3**). In a secured position, this cover allows for light to pass thru a translucent panel **312** to expose the white light or selected display unit **314**. A light can be seen with or without cover **310** removed. This light is adjustable from a dim light for reading or a bright light in the case of an emergency for signaling or for illumination of a room or area. Via card adapter **218** (FIG. **2**) photos can be downloaded from recording media, such as digital cameras, onto selected display unit **314**.

In one embodiment, programming is enabled by allowing translucent panel **312** (FIG. **3**) to be an electronically conductive touch screen and work in conjunction with panel **314** found on base unit **110**. Key pad and digital radio with speaker from base unit **110** are operable thru said cover as well. The speaker and programmable keypad are waterproof.

Once removed, cover **310** exposes railings along the sides of base unit **110**. This allows for the water purification housing to replace the cover along the rail system.

Referring to FIG. **4**, portable alarm apparatus **100** includes a water purification unit **400** supported by the base unit **110**. Water purification unit **400** is operable for purifying water received from an external water source as well as to melt snow or boil water. Cover **310** (FIG. **3**) must be removed to allow for placement of unit **400** onto the railing system of base unit **110** and to expose Ultraviolet or UVC lighting **316** (FIG. **3**) from the front panel. The UVC lighting assists in the purification process.

In the specific embodiment illustrated, water purification unit **400** includes a water pump **410** and tube combination which can be connected to a nipple fitting on the unit **400**. The tube has an air bellows to force pressure into the system for water filtration. Water pump **410** is operable to pump water from the external water source thru a series of water purification chambers **412**, **414** and **416**. The series of connected water purification chambers includes reverse osmosis and charcoal which selectively eliminate certain contaminants from water passing through their chambers.

Once thru the chambers, water collects in the housing of water purification unit **400** where it is further refined by exposure to ultraviolet illumination from UVC panel **316** (FIG. **3**) and heat processing from heating element **420**.

Water tight cover **418** is removable and its components replaceable. They include **410**, **412**, **414** and **416**.

Water purification unit **400** includes a heating element **420** (FIG. **4**) which is connected to a constant power supply from base unit **110** or from water purification unit **400** (Shown as **405**).

Water tight cover **418** is removed from water purification unit **400** to expose heating element **420** and is operable for generating heat for warming a person and thus protecting the person from hypothermia or frostbite in cold weather conditions. Heating element **420** is also operable for assisting in water purification, melting snow for drinking purposes and for boiling water for cooking and disinfecting purposes. Heating element **420** can be of any suitable construction and its temperature adjustable.

In one embodiment, heating element **420** is operable to generate steam for warming a person by introducing steam through a tube (not shown) into a survival or an anti-hypothermic suit (not shown) having layers suitable for warming a person wearing the suit.

In various embodiments, this suit can be made to be inflatable, compact, fire retardant, can come in children's sizes and have accessories such as gloves, boots and a cap. It can also be made of a smart textile, having electronic circuitry for biometrics, thermal heating of an individual or tracking.

The base unit **110**, airtight water purification unit **400** (When empty and with removable cover **418** locked in place) and related carrying gear are buoyant and can be used as a floatation device.

In one embodiment, water purification unit **400** and base unit **110** have power sources that are similar to each other in layer make-up and function (See **405** in FIG. **4**). Water purification unit **400**'s power source can be used to maintain its functions or recharge the functions of the base unit **110**.

In the specific embodiment of FIG. **1**, portable alarm apparatus **100** includes constant power supply **122** housed and supported by base unit **110**. Constant power supply **122** includes an external power connection **124** (**214** of FIG. **2**) and an external interface (not shown) which is connectible to an external power source.

In the specific arrangement illustrated, the external power interface includes a flexible power cord (not shown) having interchangeable plug adapters (not shown) for connecting to a standard alternating current wall outlet. Interchangeable plug adapters permit connections to different common wall outlets and thus permit universal operation for various countries.

Constant power supply **122** includes an onboard power supply **126** housed and supported by base unit **110**. Onboard power supply **126** can work independent of the external power connection **124**. Onboard power supply **126** can include any suitable portable power supply which can be supported by base unit **110**. Examples include: Photovoltaic, piezoelectric and thermoelectric.

As best shown in FIG. **5**, in the illustrated embodiment, onboard power supply **126** includes an array of battery cells **516** connected to an array of photovoltaic or solar cells **514**. Battery cells **516** are charged by operation of solar cells **514** when solar cells are exposed to suitable light, such as sunlight.

In the illustrated embodiment, solar cells **514** and battery cells **516** are also directly connected to circuitry **518** and thus can also provide a voltage potential and resulting electric current in the circuitry **518**. Base unit **110** is composed of a continuous light absorbing wall for solar energy consump-

tion. Ultraviolet or UVC lighting **316** (FIG. **3**) and white light or selected display unit **314** also allow for light permeation thru the front panel to allow for solar cell charging as well.

Onboard power supply **126** (FIG. **1**) also includes a manual generator **224** (FIG. **2**) operable connected to the array of battery cells **516** (FIG. **5**) to charge the battery cells when cranked. In the illustrated embodiment (FIG. **5**), manual generator **224** is also directly connected to circuitry **518** to provide a voltage potential and resulting electric current in the circuitry when cranked.

It will be understood by those skilled in the art that onboard power supply **126** (FIG. **1**) can include different suitable portable power supplies not specifically described herein. For example, in different specific arrangements, onboard power supply **126** can include a flexible solar collector or flexible thermal collector which is deployed in suitable conditions and connected by a hardwired connection to the battery cells **516**.

Base unit **110** is capable of battery management via programming and via switches **212** (FIG. **2**) located on back of base unit **110**. These switches, along with their respective LED power indicator lights, can be used to selectively power on or off various functions of the system, including module **210** functions. An operator can determine which function or functions are needed and the LED lights will indicate if there is ample power to supply various power combinations.

In an embodiment (see FIG. **2**), base unit **110** is adapted to receive and house a plurality of modules, **210**. The illustrated embodiment shows housing **110** docking with four **210** modules. Base unit **110** and modules **210** are waterproof.

In the specific embodiment (FIG. **2**), module plug-ins include biometric fingerprint technology used for protection of medical information and security for tracking. In other embodiments, Braille may be output onto a module's surface for alert messaging or the module can be used for program response input. Detection circuits can also be contained in each module as well as in the base unit itself.

Portable alarm apparatus **100** includes a plurality of detection circuits **162**, **164**, **166**, **168** which are supported by the base unit **110**. In the specific embodiment, illustrated in FIG. **1**, portable alarm apparatus **100** includes four detection circuits **162**, **164**, **166**, **168** contained in respective of the four modules **210**.

In the embodiment illustrated in FIG. **1**, each detection circuit **162**, **164**, **166**, **168** is connected to the constant power supply **122** when the respective module **210** docks with base unit **110**. Detection circuits **162**, **164**, **166**, **168** when connected to constant power supply **122** are operable to detect respective monitored conditions.

Detection circuits **162**, **164**, **166**, **168** each include a respective sensor or sensors (not shown) which is/are operable for monitoring a predetermined condition. It is to be understood that detection circuits **162**, **164**, **166**, **168** can include any suitable sensor(s) adapted for monitoring any predetermined condition such as, for example, any condition previously described herein.

In the specific embodiment illustrated, detection circuits **162**, **164**, **166**, **168** include respective sensors (not shown) selected from a function group. Detection circuit **162** along with module **252** (FIG. **2**) include sensors (not shown) operable to detect biometrics including heart rate, respiration and other vital statistics.

Detection circuits **164** and **166** along with modules **254** and **256** include sensors (not shown) operable to tracking or monitoring people or objects as desired. In the specific embodiment illustrated, sensors would be compatible with various systems to include: The GPS (Global Positioning System), EPIRB (Emergency Position Indicating Radio Beacon), ELT (Emergency Locator Transmitter), PLB (Personal Location Beacon) and RADAR. The sensors would comply with the COSPAS/SARSAT satellite system as well.

Detection circuit **168** and module **258** include sensors compatible with signaling or communicating alerts to those that are challenged via peripherals such as: Computer devices, pagers, cell phones, watches, household lights and haptic glove.

The glove (not shown) works on the principal of haptic technology relaying information by accommodating for Braille, vibration variations for coding type of emergency and by applying forces or vibrations to awaken a sleeping individual. Vibrations and flashing lights can create a reporting system to label a warning type and relay this alert to the above mentioned peripherals.

In another embodiment, sensors can detect water inundation to alert of possible drowning or of an object, such as a boat, sinking. Working with a child's watch, sensors can trigger a timer to allow an adult to turn off the reporting function. This prevents an alarm broadcast, including a 911 call, from occurring in the event of a false alarm such as might occur when the watch is immersed during hand washing.

The base unit **110** includes detectors that include: infrared smoke detectors, ionic smoke detectors, photoelectric smoke detectors, a fire detector and carbon monoxide detector.

Portable alarm apparatus **100** includes alarm circuit **140** (FIG. **1**) operable in response to detection of a monitored condition by detection circuit **162**, **164**, **166**, **168** to produce an alarm signal for warning at least one person. In the specific embodiment illustrated, alarm circuit **140** is supported by base unit **110**. It will be understood that, in other embodiments (not shown), alarm circuit **140** can be supported by any module **210**.

In an alternative embodiment (not shown), alarm circuit **140** is integrated into the detector circuits **162**, **164**, **166**, **168**. Alarm circuit **140** is connected to the constant power supply **122**. In the specific embodiment illustrated, alarm circuit **140** is operable to provide an audible alarm signal.

It will be understood that, in other embodiments (not shown), alarm circuit **140** can provide a audible alarm signal such as a mother's voice awakening a child to a fire alarm or a warning in Spanish, Cantonese, Korean or other programmable languages.

Portable alarm apparatus **100** incorporates at least one form of wireless communication which could include: Cellular, personal area network, wide area network, ultra wide band, radio frequency and radar. Platform examples are Zigbee, 3G, GSM, GPRS, EDGE and CDMA.

Upon detection of a condition by detection circuit **162**, **164**, **166**, **168** (FIG. **1**), wireless communications connection **184** is operable to transmit or receive a warning signal. Signal can be to or from portable alarm apparatus **100** or from related peripherals.

Portable alarm apparatus **100** is operable to receive identified warning signals from other portable alarm apparatus' or peripherals for warning persons in other locations of detected conditions. Such an arrangement or series of transmitted warning signals is useful, for example, to warn persons in remote locations within a large building of dangerous conditions detected by portable alarm apparatus **100** in another location in the same building or in a complex of buildings.

The portable alarm apparatus **100** thus includes a wireless alarm relay system which is operable in response to detection of a monitored condition by the detection circuit **162**, **164**,

166, 168 to produce a relayed alarm signal and to communicate the relayed alarm signal to a compatible alarm system or various peripherals.

Wireless communications connection **184** is selectively operable with a remote communications receiver (not shown). Base unit **110** and peripherals can be 911 compliant, providing for tracing of an alarm broadcast.

Portable alarm apparatus **100** includes hardwired communication connection **186** supported by base unit **110** suitable for internet communication with an internet protocol network (not shown). In one specific embodiment, the hardwired internet connection is via USB **216** (FIG. **2**), although any suitable hardwired internet connection can be included.

Data such as a child's current photo, physical attributes and even fingerprints can be uploaded to portable alarm apparatus **100** and downloaded to law enforcement or other rescue agencies.

In the specific embodiment shown in FIG. **2**, base unit **110** can support cellular communication via plug in port **222**. This port allows for both power and coverage expansion for cellular phones. Optional kit (Not shown) can support connection of most major brands of cellular phones.

In the specific embodiment illustrated in FIG. **1**, base unit **110** is lightweight and thus adapted to be manually carried. It can also be hung on a wall via adjustable strap **220** (FIG. **2**) or placed on a desk top for displaying (See foldable legs **226** of FIG. **2**)

In other embodiments (not shown), the base unit can be portable in a different manner and thus can include, for example, a set of wheels and a handle suitable for being rolled, a backpack frame with shoulder straps for being carried on a person's back, or a saddlebag or frame for being carried on a vehicle such as a bicycle, scooter or motorcycle. The adjustable strap **220** can be used to secure apparatus over a vehicles head rest.

In one embodiment, base unit **110** and water purification unit **400** are made up of specific element(s) and polymer layers to create durable and multi-functional housings. Elements such as silicon and titanium extol characteristics such as: Scratch, chemical, heat, moisture and pressure resistance.

Layer processing or assembly can include: Quantum Dots or Rods, PECVD, Laser or Flame Pyrolysis, Nano Technology and Roll to Roll processing.

FIG. **5** illustrates a layer function diagram of portable alarm apparatus **100** according to an embodiment. Portable alarm apparatus **100** includes integrated circuit assembly **500** which has a plurality of layers. In the specific embodiment illustrated, integrated circuit assembly **500** forms detection circuit **162**, **164**, **166**, **168** and alarm circuit **140**, constant power supply **122** and communications circuit **182** from FIG. **1**.

Integrated circuit assembly **500** includes an outer fire retardant layer **510** which also transmits light. An ultraviolet light and display layer **512** is stacked adjacent fire retardant layer **510** to generate light which is passed outwardly through fire retardant layer **510**.

Ultraviolet light and display layer **512** also absorbs light, which it then passes on to the solar cell layer **514**, adjacent to it. A battery cell layer **516** is stacked adjacent the solar cell layer **514**. Battery cells of battery cell layer **516** are charged by operation of solar cell layer **514**. An inner integrated circuit layer **518** is stacked adjacent to the battery cell layer **516**. Operation of integrated circuit layer **518** is powered by operation of battery cells in battery cell layer **516** and, alternatively, by operation of solar cell layer **514**.

Although specific embodiments are illustrated and described herein, it will be appreciated by those of ordinary skill in the art that any arrangement which is calculated to achieve the same purpose may be substituted for the specific embodiments shown. This application is intended to cover any adaptations or variations. For example, one of ordinary skill in the art will appreciate that different specific implementations can be made that provide the required functions.

One of skill in the art will readily appreciate that the names of the apparatus are not intended to limit embodiments. Furthermore, additional apparatus can be added to the components, functions can be rearranged among the components, and new components to correspond to future enhancements and physical devices used in embodiments can be introduced without departing from the scope of embodiments. The terminology used in this application is meant to include all environments and alternate technologies which provide the same functionality as described herein.

I claim:

1. A portable alarm apparatus for warning a person, the portable alarm apparatus comprising:

a manually portable base unit;

an integrated circuit assembly;

a constant power supply supported by the base unit, the constant power supply including an external power supply having an interface connectible to a power source external of the base unit, the constant power supply including an onboard power supply independent of the external power supply, and

a detection circuit supported by the base unit, the detection circuit being connected to the constant power supply, the detection circuit being operable to detect a monitored condition; and an alarm circuit supported by the base unit, the alarm circuit being connected to the constant power supply, the alarm circuit being operable in response to detection of the monitored condition by the detection circuit to produce an alarm signal for warning at least one person; the integrated circuit assembly including a portion of at least one of: the detection circuit, the alarm circuit, and the constant power supply, the integrated circuit assembly including multiple layers, the layers including: an outer fire retardant layer adjacent to a light emitting layer, a solar cell layer adjacent to the light emitting layer, a battery cell layer adjacent to the solar cell layer, and an inner integrated circuit layer adjacent to the battery cell layer.

* * * * *